

WHAT IS CLAIMED IS:

1. A video processing device comprising:  
correction amount obtaining means for obtaining a  
correction amount from sequentially applied moving  
images, and

5 image correcting means for subjecting an input  
moving image to quality improving correction processing  
based on a correction amount obtained by said correction  
amount obtaining means.

2. The video processing device as set forth in claim  
1, further comprising

image input means for obtaining a frame image  
from sequentially applied moving images and outputting  
5 the image to said correction amount obtaining means,  
wherein

said correction amount obtaining means obtains  
said correction amount from said frame image and said  
image correcting means subjects said frame image to  
10 quality improving correction processing based on said  
correction amount.

3. The video processing device as set forth in claim  
1, further comprising:

correction region cutting-out means for, before  
said moving image is subjected to correction processing,

5 cutting out a region to be corrected from the moving  
image in question, and

image composing means for combining a region to  
be corrected which is cut out by said correction region  
cutting-out means and a region not to be corrected which  
10 is a remainder left after the region to be corrected in  
question is cut out.

4. The video processing device as set forth in claim  
2, further comprising

correction amount change limiting means for  
limiting an amount of change between a correction amount  
5 of a current frame image obtained by said correction  
amount obtaining means and a stored correction amount of  
a preceding frame image.

5. The video processing device as set forth in claim  
2, further comprising:

lapse of fixed time detecting means for counting  
the number of frames from a frame image whose said  
5 correction amount is lastly updated to a current frame  
image to determine whether the number of frames exceeds  
a fixed value, and

correction amount update determining means for  
giving an instruction to update said correction amount  
10 when said lapse of fixed time detecting means determines  
that a fixed time has elapsed.

6. The video processing device as set forth in claim 2, further comprising:

cut point detecting means for detecting a cut point indicative of switching of a scene in said moving image based on a change of a feature amount obtained from each frame image, and correction amount update determining means for giving an instruction to update said correction amount when said cut point detecting means detects said cut point.

7. The video processing device as set forth in claim 2, further comprising:

lapse of fixed time detecting means for counting the number of frames from a frame image whose said correction amount is lastly updated to a current frame image to determine whether the number of frames exceeds a fixed value,

cut point detecting means for detecting a cut point indicative of switching of a scene in said moving image based on a change of a feature amount obtained from each frame image, and

correction amount update determining means for giving an instruction to update said correction amount either when detection of a lapse of a fixed time is made by said lapse of fixed time detecting means or when detection of said cut point is made by said cut point

detecting means.

8. The video processing device as set forth in 1,  
wherein

said correction amount obtaining means includes  
correction amount calculating means for  
5 calculating  $n$  ( $n \geq 1$ ) kinds of arbitrary correction  
amounts, and

said image correcting means includes  
 $n$  kinds ( $n \geq 1$ ) of arbitrary correcting means.

9. The video processing device as set forth in claim  
2, wherein

said correction amount obtaining means includes  
at least one of:  
5 white balance correction amount calculating means  
for calculating a white balance correction amount of  
said moving image,

contrast correction amount calculating means for  
calculating a contrast correction amount of said moving  
10 image,

saturation correction amount calculating means  
for calculating a saturation correction amount of said  
moving image,

exposure correction amount calculating means for  
15 calculating an exposure correction amount of said moving  
image,

sharpness correction amount calculating means for calculating a sharpness correction amount of said moving image, and

20           preferable color correction amount calculating means for calculating a preferable color correction amount indicative of a correction amount required for a preset preferable color in said moving image, and  
25           said image correcting means includes at least one of:

white balance correcting means for conducting white balance correction of said moving image corresponding to said correction amount obtaining means,

30           contrast correcting means for conducting contrast correction of said moving image,

saturation correcting means for conducting saturation correction of said moving image,

exposure correcting means for conducting exposure correction of said moving image,

35           sharpness correcting means for conducting sharpness correction of said moving image, and

preferable color correcting means for conducting said preferable color correction of said moving image.

10.       The video processing device as set forth in claim 9, wherein

          said image correcting means conducts correction with respect to a moving image

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9, wherein

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9, wherein

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4, wherein

said correction amount change limiting means

includes

5           change amount calculating means for calculating  
an amount of change between a latest correction amount  
and a correction amount of a preceding frame and change  
amount limiting means for limiting an amount of change  
of said correction amount based on a maximum change  
10       range.

14.       The video processing device as set forth in claim  
6, wherein

5           said cut point detecting means is structured to  
consider a result of comparison of a color histogram  
generated based on color information of each pixel of  
said moving image which is conducted on a frame basis as  
a feature amount and detect a cut point of said moving  
image based on a change of the feature amount.

15.       The video processing device as set forth in claim  
14, wherein

5           said cut point detecting means is structured to,  
at the time of generating said color histogram from said  
moving image, generate said color histogram after  
thinning out the image at fixed intervals.

16.       A video processing device comprising:

image input means for obtaining a frame image  
from sequentially applied moving images, and

cut point detecting means for detecting a cut  
5 point indicative of switching of a scene in said moving  
image based on a change of a feature amount obtained  
from each frame image.

17. The video processing device as set forth in claim  
16, wherein

said cut point detecting means is structured to  
consider a result of comparison of a color histogram  
5 generated based on color information of each pixel of  
said moving image which is conducted on a frame basis as  
a feature amount and detect a cut point of said moving  
image based on a change of the feature amount.

18. The video processing device as set forth in claim  
17, wherein

said cut point detecting means is structured to,  
at the time of generating said color histogram from said  
5 moving image, generate said color histogram after  
thinning out the image at fixed intervals.

19. A video display device comprising:

moving image correction amount obtaining means  
for obtaining  $N$  ( $N \geq 1$ ) kinds of correction amounts from  
sequentially applied moving images,

5 image correcting means for conducting  $N$  ( $N \geq 1$ )  
kinds of quality improving corrections with respect to



said moving image based on a correction amount obtained  
by said moving image correction amount obtaining means,  
and

10           image display means for displaying a moving image  
corrected by said image correcting means.

20.       A video processing method comprising the steps  
of:

          obtaining a correction amount from sequentially  
applied moving images, and

5           conducting quality improving correction with  
respect to said applied moving image based on the  
obtained correction amount.

21.       The video processing method as set forth in claim  
20, comprising the steps of:

          obtaining a correction amount from each frame  
image forming sequentially applied moving images, and

5           conducting quality improving correction with  
respect to said frame image based on the obtained  
correction amount.

22.       The video processing method as set forth in claim  
20, comprising the step of

          updating a correction amount for every N frames  
( $N \geq 1$ ).

23. The video processing method as set forth in claim 20, comprising the step of

checking said input moving image on a frame basis and when a cut point indicative of switching of a scene in said input moving image is detected, updating a correction amount.

24. The video processing method as set forth in claim 20, comprising the steps of:

updating a correction amount for every N frames ( $N \geq 1$ ), and

checking said input moving image on a frame basis and when a cut point indicative of switching of a scene in said input moving image is detected, updating a correction amount.

25. The video processing method as set forth in claim 20, comprising the steps of:

obtaining n ( $n \geq 1$ ) kinds of arbitrary correction amounts at the time of obtaining said correction amount from said input moving image, and

conducting n ( $N \geq 1$ ) kinds of arbitrary quality improving corrections with respect to said input moving image based on the obtained correction amount.

26. The video processing method as set forth in claim 21, wherein

said correction amount obtaining step includes at least one of the steps of:

5           calculating a white balance correction amount of said moving image, calculating a contrast correction amount of said moving image, calculating a saturation correction amount of said moving image, calculating an exposure correction amount of said moving image, calculating a sharpness correction amount of said moving image, and calculating a preferable color correction amount indicative of a correction amount required for a preset preferable color in said moving image, and

10           said quality improving correction conducting step includes at least one of the steps of:

15           conducting white balance correction of said moving image corresponding to said correction amount obtaining step, conducting contrast correction of said moving image, conducting saturation correction of said moving image, conducting exposure correction of said moving image, conducting sharpness correction of said moving image, and conducting said preferable color correction of said moving image.

20           27.       The video processing method as set forth in claim 26, wherein

            at said quality improving correction conducting step, correction is conducted with respect to a moving image corrected at the step of conducting quality

improving correction at a preceding stage based on a correction amount calculated at said step of obtaining a correction amount, and

10 at said correction amount obtaining step, said correction amount is calculated from a moving image corrected at said step of conducting quality improving correction corresponding to the step of obtaining a correction amount at a preceding stage.

28. The video processing method as set forth in claim 26, further comprising the step of

5 limiting an amount of change between the obtained correction amount of a current frame and a stored correction amount of a preceding frame.

29. The video processing method as set forth in claim 26, further comprising the steps of:

5 cutting out an evaluation image region necessary for obtaining said correction amount from said frame image, and

obtaining said correction amount from the cut-out evaluation image.

30. The video processing method as set forth in claim 23, further comprising the step of,

at the detection of said cut point, considering a result of comparison of a color histogram generated

5 based on color information of each pixel of said frame image which is conducted on a frame basis as a feature amount and detecting a cut point of the moving image based on a change of the feature amount.

31. The video processing method as set forth in claim 30, further comprising the step of,

5 when detecting said cut point, at the time of generating said color histogram from said frame image, generating said color histogram after thinning out the image at fixed intervals.

32. The video processing method as set forth in claim 20, further comprising the steps of:

5 when a moving image partly flows on such a screen as a screen of a personal computer, before subjecting said moving image to correction processing, cutting out a region to be corrected from the moving image in question,

subjecting the cut-out image to be corrected to image correction, and

10 combining said region to be corrected which is subjected to image correction and a region not to be corrected which is a remainder left after the region to be corrected in question is cut out to output the combined image.

33. A video processing method comprising the steps of:

obtaining a frame image from sequentially applied moving images, and

5 detecting a cut point indicative of switching of a scene in said moving image based on a change of a feature amount obtained from each frame image.

34. The video processing method as set forth in claim 33, wherein

at said cut point detecting step, a result of comparison of a color histogram generated based on color information of each pixel of said moving image which is conducted on a frame basis is considered as a feature amount and a cut point of said moving image is detected based on a change of the feature amount.

35. The video processing method as set forth in claim 34, wherein

at said cut point detecting step, at the time of generating said color histogram from said moving image, said color histogram is generated after thinning out the image at fixed intervals.

36. A video processing program for controlling a computer to execute video processing, comprising the functions of:

obtaining at least one correction amount from  
5 moving images sequentially applied to the computer,  
comparing the obtained correction amount with a  
correction amount obtained from at least one of  
preceding past frames to suppress a change in correction  
amount, and

10 subjecting a frame image to quality improving  
correction based on the suppressed correction amount.

37. A video processing program for controlling a  
computer to execute video processing, comprising the  
functions of:

obtaining at least one correction amount from  
5 moving images sequentially applied to the computer,  
based on a change of a feature amount obtained  
from a frame image of an input moving image, detecting a  
cut point indicative of switching of a scene in the  
moving image in question,

10 comparing the obtained correction amount with a  
correction amount obtained from at least one of  
preceding past frames and suppressing an amount of  
change in correction amount in consideration of  
existence/non-existence of a cut point, and

15 subjecting the frame image to quality improving  
correction based on the suppressed correction amount.

38. A video processing program for controlling a

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detecting a cut point indicative of switching of a scene in said moving image based on a change of a feature amount obtained from each frame image.